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Study analyzes best approach for treating abdominal aortic aneurysms

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Abdominal aortic aneurysm (AAA)—a condition in which the large vessel that supplies blood to your abdomen, legs, and pelvis swells to over 50 percent its normal size—occurs in approximately 4 out of 100 adults. The risk increases with age, peaking after age 70. AAA is more common in men than women, and more common in smokers or former smokers than those who never smoked. If the aneurysm ruptures, most patients die before they even get to the hospital.

Since the 1950s, open surgery, in which the damaged portion of the aorta is replaced with a synthetic graft through a large surgical incision, has been the mainstay of AAA repair. Open surgery entails a substantial risk of death and complications, as well as a prolonged recovery period lasting months.

Over the past decade, a newer procedure, called endovascular aneurysm repair (EVAR) has become increasingly popular. With this newer procedure, a fabric covered stent is delivered to the damaged site through the blood vessels via a catheter, thereby rerouting blood through the stent and away from the weakened wall of the aneurysm. Currently, about half of AAA repairs done in Medicare patients are performed using EVAR.

While EVAR is typically a less onerous procedure on the patient compared to open repair, there is concern that the repair might not be as durable, with a small ongoing risk of rupture requiring reinterventions, potentially leading to higher future mortality. So then, which

intervention are doctors and patients to choose?

In a large cohort study of over 45,000 Medicare beneficiaries treated for AAA, researchers at Harvard Medical School and Beth Israel Deaconess Medical Center have found that reinterventions of EVAR are balanced by late complications of open repair. When all these risks are factored together, the increased mortality of open repair makes EVAR the preferable option. Results are published in the January 31 edition of the *New England Journal of Medicine*.

The research team, led by Marc Schermerhorn of the department of surgery at Beth Israel Deaconess Medical Center, and Bruce Landon, associate professor of health care policy at Harvard Medical School, looked at data from 45,660 closely matched patients from the Medicare program who underwent one procedure or the other. All patients were treated for AAA, half with open repair, and half with EVAR.

The researchers found that during the perioperative period—the recovery period immediately following surgery—mortality was substantially higher for open repair patients than for EVAR patients, 4.8 percent vs. 1.2 percent. The mortality benefit of EVAR increased with age, with a mortality difference of over 8 percent for those over age 85. This mortality advantage persisted for at least three years.

Reinterventions for the aneurysm were considerably higher for the EVAR group (although these were mostly minor) than for the open repair group, 9.0 percent vs. 1.7 percent. However, because open repair involves an invasive procedure called laparotomy, where the surgeon needs to enter the patient through the abdomen, complications such as hernia and bowel obstruction requiring surgery were more than twice as high four years after the procedure for open repair patients compared with EVAR patients.

“This last observation is particularly relevant because until now, no one has looked at this,” says Schermerhorn.

The researchers reason that when laparotomy complications are compared with EVAR reinterventions, both procedures carry roughly equivalent risks during the four year period following surgery. When the perioperative mortality of open repair is taken into account, EVAR is clearly the more logical choice, particularly for the elderly and frail.

“These findings are important for Medicare,” says Landon. “And they’re important for clinical decision making. For those who are anatomically suitable, endovascular repair appears to be the clear first choice.”

Source: Harvard Medical School